

TRANSMITTAL OF APPEAL BRIEF		Docket No. 65856-0032	
In re Application of: Jack D. Patterson			
Application No. 09/881,536-Conf. #8152	Filing Date June 14, 2001	Examiner Not Yet Assigned	Group Art Unit RECEIVED
Invention: CONNECTIONLESS DATA LINK ASSEMBLY		FEB 17 2004	

OFFICE OF PETITIONS

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Dated: February 10, 2004

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#14



Group Art Unit : 2831 FEB 17 2004

Examiner : J. Lee

Attorney Docket No. :65856-0032

OFFICE OF PETITIONS

Jennifer S. Greer

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Appeals and Interferences for allowance of the present patent application referenced above.

I. REAL PARTY IN INTEREST

The Real "Party-In-Interest" is Eaton Corporation, 1111 Superior Avenue, Cleveland, Ohio, 44114-2584. Eaton Corporation was assigned all rights to the U.S. Patent Application identified by Serial No. 09/881,536 by Jack D. Patterson, 3402 N. 26th St., Kalamazoo, Michigan, 49048 on May 31, 2001.

II. RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences related to this application.

III. STATUS OF CLAIMS

Claims 1-16 are pending in the application and claims 1-12 are the subject of this Appeal. The present application was filed on February 14, 2000 with originally-filed claims 1-16. In response to the Office Action mailed May 7, 2002, Appellant on June 3, 2002 filed a Response to Restriction Requirement provisionally electing, with traverse, claims 1-12. In response to the Final Office Action mailed November 15, 2002 ("Final Office Action"), and the Advisory Action mailed February 4, 2003 ("Advisory Action") Appellant filed a Notice of Appeal on February 18, 2003. No claims have been allowed.

Claims 1-3, 6-9 and 12 were rejected in the Final Office Action under 35 U.S.C. §103(a) over the "conventional art as described in the [Appellant's] specification and [Appellant's] prior art Figure 2." The Final Office Action rejects Claims 4, 5, 10 and 11 under 35 U.S.C. §103(a) over the conventional art as described in the Appellant's specification and Appellant's prior art Figure 2 in view of U.S. Patent No. 6,257,923 to Stone et al. ("Stone") and U.S. Patent No. 4,929,477 to Will ("Will").

IV. STATUS OF AMENDMENTS

No amendments have been filed subsequent to the final rejection. A copy of all claims on appeal is attached hereto as an Appendix.

V. SUMMARY OF THE INVENTION

The invention relates in general to a vehicle drivetrain with an electronic control unit and a data link, and in particular to a pre-assembled, connectionless data link assembly that provides electronic communication between the electronic control unit and the engine controller, the transmission controller, and the anti-lock brake system controller. (Specification, Paragraph 1.)

An electronically controlled engine is usually provided with its own electronic control unit (ECU). It is known that a data link or databus complying with SAE J1922, SAE J1939, CAN and/or ISO 11898 protocols, or similar protocols, carries information indicative of engine torque, engine speed, transmission output shaft speed, and brake information. (Specification, Paragraph 4.) To properly install the data link, assembly line workers at the production facility must correctly make at least sixteen connections. Because the data link provides electronic communication between the engine, transmission and anti-lock braking system, proper installation of the data link is crucial to proper operation of the vehicle. However, proper installation of the data link using such a "building block" design rarely occurs, thereby causing problems with vehicle operation. (Specification, Paragraph 5.)

The conventional data link design is difficult to assemble because of the large number of connections to install the data link, thereby increasing the likelihood of improper connections, the omission of parts, and the installation of wrong parts. For example, too many or too few terminating resistors may be installed, or the terminating resistors may be installed at the wrong locations. (Specification, Paragraph 7.) Even if the data link is assembled with all of the correct parts and the connections are properly made, an assembly line worker can accidentally connect the data link to the chassis at the

wrong location. As a result, the data link can be stretched and/or bent, causing the data link to function improperly, if at all. (Specification, Paragraph 8.)

Figure 2 filed with the specification shows a conventional data link being of a modular design that must be assembled by workers at the vehicle assembly facility. Typically, the data link includes a plurality of backbone connectors 62, a plurality of stub branches 64 plugged into the backbone connectors 62 by the use of "T" connectors 66. A terminating resistor 68 must be plugged into each end of the modular, conventional data link. A battery ground 69 is provided to adequately ground the data link. As is readily apparent from Figure 2, the conventional data link design is difficult to assemble because of the large number of connections to install the data link, thereby increasing the likelihood of improper connections, the omission of parts, and the installation of wrong parts. (Specification, Paragraph 24.)

Figure 3 filed with the specification shows one embodiment of the invention, a pre-assembled, connectionless data link assembly DL for electronically connecting the engine controller 54, the transmission controller 52, a controller 53 for an anti-lock brake system, and the like. The connectionless data link assembly DL comprises a shunt harness formed by a trunk portion 72 and one or more shunt portions 74 spliced into the trunk portion 72. The trunk portion 72 and shunt portions preferably comprise a multiplex cable conforming to SAE J-1939/15 and SAE J-1939/18 standards. However, the invention is not limited by the number of shunt portions 74 that are spliced into the trunk portion 72, and the principles of the invention can be practiced with any desired number of shunt portions 74 that can be spliced into the trunk portion 72 to electrically connect a corresponding number of electronic devices. (Specification, Paragraph 25.)

Preferably, a double wall shrink tube 78 covers the splice between the trunk portion 72 and the shunt portions 74. One side of the double wall shrink tube 78 has an adhesive thereon to securely cover the splice between the trunk portion 72 and the shunt portions 74. A pair of termination resistors 76 is spliced into the ends of the data link DL. The termination resistors 76 are preferably 120 ohm, ¼ watt, 5% resistors housed in a barrel mold. (Specification, Paragraph 26.)

The pre-assembled, connectionless data link assembly DL shown in Figure 3 has several advantages over the conventional, modular data link of FIG. 2. One advantage is that the number of connections needed for the data link assembly DL of the invention is drastically reduced as compared to the conventional data link. Another advantage of the data link assembly DL of the invention is that the proper number of terminating resistors 76 is spliced into the trunk portion 72 at the proper locations, as compared to the conventional data link in which the correct number of terminating resistors 68 must be securely plugged into the ends of the data link. Yet another advantage is that the data link assembly DL of the invention can be easily connected to the controllers for the engine, transmission and anti-lock braking system by simply plugging each shunt portion to the appropriate controller, thereby eliminating the human factor involved with inline connections necessary with the conventional data link. (Specification, Paragraph 27.)

VI. ISSUES PRESENTED

- A. Whether structural differences between the claimed invention and the prior art were disclosed in the application as filed or constituted new matter when mentioned in a subsequent paper.
- B. Whether Claims 1-3, 6-9 and 12 are unobvious over the prior art as disclosed by Appellant.
- C. Whether Claims 4, 5, 10, and 11 are unobvious over the prior art as disclosed by Appellant in view of Stone and Will.

VII. GROUPING OF CLAIMS

The claims do not stand or fall together. Claims 1, 6-7, and 12 stand or fall together as Claim Group A. Claims 2 and 8 stand or fall together as Claim Group B. Claims 3 and 9 stand or fall together as Claim Group C. Claims 4-5 and 10-11 stand or fall together as Claim Group D. Reasons for separate patentability of the above-indicated Claim Groups A, B, C, and D are presented in the Arguments section pursuant to 37 C.F.R. § 1.192(c)(5).

VIII. ARGUMENTS

A. All Claim Groups Are Allowable Because Independent Claims 1 And 7 Recite A Novel Structure That Was Disclosed In The Application As Filed.

Independent claims 1 and 7 were rejected under 35 U.S.C. 103(a) over the “conventional art as described in the [Appellant’s] specification and [Appellant’s] prior art Figure 2.” Claims 1 and 7 recite, among other limitations, “an engine shunt portion spliced into said trunk portion”. In the Advisory Action the Examiner appears to acknowledge that claims 1 and 7 recite novel subject matter, but wrongly asserts that Appellant’s explanation of that novelty in the Request for Reconsideration is new matter. The Examiner’s assertion that Appellant has brought new matter into the application is wrong because the application has never been amended¹ and the application as filed discloses clear structural differences between the prior art and the invention as embodied in claims 1 and 7.

In the Final Office Action (page 4) the Examiner stated that “[s]plicing is a method of connection and will not be addressed in the structural limitation of the electronically controlled vehicle drivetrain.” In the Request for Reconsideration filed January 15, 2003 (“Request for Reconsideration”), Appellant, responding to this statement, explained that:

As shown in Figure 3, the splicing of the engine shunt portion and the transmission shunt portion into the trunk portion structurally alters the data link assembly from that of the conventional data link assembly shown in Figure 2. Upon casual observation of Figures 2 and 3, one notices that the “T” connectors 66 of Figure 2 are eliminated by the spliced connections of Figure 3. Further, the backbone connectors 62 used by the “T” connectors 66 are also eliminated in the invention. As a result, the pre-assembled data link assembly of the invention is structurally different from the conventional data link assembly shown in Figure 3, contrary to the Office action. (Request for Reconsideration, page 3; emphases added.)

¹ The only possible amendment to the application as filed was the Examiner’s renumbering of mis-numbered claims 12-15 to 13-16 in the Office Action mailed on May 7, 2002.

In the Advisory Action, the Examiner responded to this explanation by stating that “splicing is a method limitation” and that Appellant’s “observation is new matter not disclosed as a novel aspect of the invention as presented by the disclosure.” By referring to a “method limitation” – with no explanation of why such a limitation would not be patentable – and by asserting that Appellant has brought new matter, the Examiner apparently is attempting to obfuscate the Advisory Action’s implicit concession of clear structural differences between the claimed invention and the prior art of record.

1. Appellant Has Not Brought Any Amendment, Much Less Any New Matter, Into This Application.

The Examiner evidently has confused Appellant’s explanation as to how novel features were disclosed in the specification and drawings as originally filed with an attempt to amend the specification by adding new matter. New matter comprises subject matter added by amendment to the drawings, specification, or claims. *See* MPEP §§ 706.03(o), 2163.06. Appellant has made no amendment whatsoever to the application as filed. Therefore, the Examiner’s assertion that new matter has been added to this Application makes no sense. In the Request for Reconsideration, Appellant simply argued that independent claims 1 and 7, read in light of the specification and drawings *as originally filed*, recite structural features not known in the prior art. Rather than amending the application in any way, the Request for Reconsideration simply sought to direct the Examiner’s attention to subject matter disclosed in the application as filed.

2. The Invention Comprises Clear Structural Differences From The Prior Art of Record.

Specifically, the Request for Reconsideration noted differences between the prior art discussed in the application and the disclosure of “an engine shunt portion spliced into said trunk portion” as recited in claims 1 and 7. From the specification as originally filed it is clear that the prior art, depicted in Figure 2, teaches “a plurality of backbone connectors 62 [and] a plurality of stub branches 64 plugged into the backbone connectors 62 by the use of “T” connectors 66.” (Specification, paragraph 24.) The specification as originally filed further clearly discloses in Figure 3 “a shunt harness formed by a trunk portion 72 and one or more shunt portions 74 spliced into the trunk portion 72.”

(Specification, paragraph 25.) Both from the specification and a comparison of Figures 2 and 3 it is clear that the shunt harness comprises a novel feature of the invention over the disclosed prior art, replacing the plurality of backbone connectors 62, the plurality of stub branches 64 and the "T" connectors 66. By eliminating the "T" connectors 66 and the backbone connectors 62 in favor of the shunt harness, the present invention clearly offers a novel improvement over the prior art of record, and claims 1 and 7 are accordingly patentable.

3. Secondary Considerations Demonstrate That The Invention Is Not Obvious Over The Prior Art.

It is well-settled that secondary considerations such as commercial success or commercial advantages, long felt but unsolved need, and failure of others are relevant to showing that an invention is not obvious over the prior art. *E.g., ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 221 USPQ 929, 932, 933 (Fed. Cir. 1984) Here, as argued in the Request for Reconsideration (pages 2-3), Appellant has shown significant commercial advantages in support of the novelty of the invention recited in claims 1 and 7, including the following:

- Eliminating improper assembly of the data link (Specification, paragraph 7);
- Reducing instances of improper installation of the data link and damage to the data link due to human error (Specification, paragraphs 7 and 8); and
- Reducing the number of parts a manufacturer must maintain in inventory thus making the manufacturing process more efficient and less costly (Specification, paragraphs 6).

Notably, the Examiner has not commented on any of these commercial advantages cited in the Specification. Appellant submits that these secondary considerations provide yet another reason for the patentability of claims 1 and 7.

Accordingly, for all the reasons stated in Section A, independent claims 1 and 7 are in condition for allowance. Further, claims 2-6 all depend directly or indirectly from claim 1. Claims 8-12 all depend directly or indirectly from claim 7. Accordingly, all claims are in condition for allowance.

B. Claim Group B Is In Condition For Allowance Because The Examiner Has Improperly Taken Official Notice.

Claims 2 and 8 were rejected under 35 U.S.C. 103(a) over the “conventional art as described in the [Appellant’s] specification and [Appellant’s] prior art Figure 2.” Claims 2 and 8 recite that “said trunk portion” of the pre-assembled data link assembly recited in claims 1 and 7 respectively “comprises a multiplex cable.” The Final Office Action (page 3) based the rejection of claims 2 and 8 on

official notice that it would have been obvious to use multiplex cable in the trunk portion of the vehicle drivetrain, because the trunk portion of the vehicle drivetrain in an automated vehicle’s controller requires ability to send and/or receive multiple signals.

Appellant disputes that the use of a multiplex cable in the trunk portion of the data link assembly as recited in claims 2 and 8 is “capable of instant and unquestionable demonstration as being well-known.” MPEP § 2144.03(A) (citing *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970)). Moreover, the Examiner did not respond after Appellants objected appropriately, *see* Request for Reconsideration at 4, to the Examiner’s taking of Official Notice. *See* 37 CFR 1.104(d)(2), MPEP 2144.03. Therefore, the rejection of claims 2 and 8 is not supported by documentary evidence as required by prevailing law as well as PTO rules and practice. Accordingly, for this independent reason claims 2 and 8 are in condition for allowance.

C. Claim Group C Is In Condition For Allowance Because The Examiner Has Wrongly Asserted That Housing First And Second Termination Resistors In A Barrel Mold Is A Design Choice.

Claims 3 and 9 were rejected under 35 U.S.C. 103(a) over the “conventional art as described in the [Appellant’s] specification and [Appellant’s] prior art Figure 2.” Claims 3 and 9 each recite that “said first and second termination resistors are housed in a barrel mold.” The Final Office Action (page 3) asserted that housing the first and second termination resistors in a barrel mold would have been “an obvious matter of design choice” because

[Appellant] has not disclosed that having first and second termination resistors housed in a barrel mold solves any stated problem or is for any particular purpose and it appears that the

invention would perform equally well with any conventional termination resistors as is disclosed in [Appellant's] prior art Figure 2.

Contrary to the Examiner's glib assertion that Appellant's recitation of a barrel mold is a "design choice", as argued in the Request for Reconsideration (page 4), Paragraph 27 of the specification discloses the following advantages, all flowing at least in part from the use of the barrel mold:

- [T]he number of connections needed for the data link assembly DL of the invention is drastically reduced as compared to the conventional data link.
- [T]he proper number of terminating resistors 76 are spliced into the trunk portion 72 at the proper locations, as compared to the conventional data link in which the correct number of terminating resistors 68 must be securely plugged into the ends of the data link.
- The data link assembly DL of the invention can be easily connected to the controllers for the engine, transmission and anti-lock braking system by simply plugging each shunt portion to the appropriate controller, thereby eliminating the human factor involved with inline connections necessary with the conventional data link.

Thus, the Examiner has simply ignored Appellant's disclosure in asserting that the structure of the present invention, including the use of a barrel mold, is a matter of design choice. Rather, Appellant's disclosure makes clear that the design of the claimed invention, including first and second termination resistors housed in a barrel mold, is necessary to procure the advantages discussed above.

For the forgoing reasons, claims 3 and 9 are in condition for allowance.

D. Claim Groups D Is In Condition For Allowance Because The Examiner Failed To State A Prima Facie Case Of Obviousness For Combining The Cited References.

Claims 4-5 and 10-11 were rejected under 35 U.S.C. 103(a) over "[Appellant's] specification and [Appellant's] prior art Figure 2 in view of" Stone and Will. Claims 4 and 10 recite that the data link assembly further comprises "a double wall shrink tube for covering said engine shunt portion and said transmission shunt portion." As argued in

the Request for Reconsideration, the combination of the prior art disclosed in Appellant's specification with Stone and Will does not teach or suggest all of the limitations of claims 4 and 10. Such a teaching or suggestion is required for the *prima facie* case of obviousness that the Examiner is required to present. See MPEP §2143; *In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438, 1444 (Fed. Cir. 1991); *In re Royka*, 490 F.2d 981, 180 USPQ 560, 562 (CCPA 1972). Here, the Final Office Action states simply (pages 5-6) that "Stone et al. teach of using shrink tube (44) for covering wires in a vehicle" and "Will teaches of shrink tubes with double walls." The Final Office points to no motivation to combine Stone and Will with each other, much less with the prior art disclosed in Appellant's specification, and Appellant can find no such motivation stated in either Stone or Will. Accordingly, the Examiner's unsupported conclusion (Final Office Action, page 6) that it would have been obvious to one of ordinary skill to combine the prior art disclosed by Appellant's specification with Stone and Will is insufficient to make out the required *prima facie* case of obviousness.

For the forgoing independent reasons, claims 4 and 10 are allowable over the prior art of record. Claims 5 and 11 depend from claims 4 and 10 respectively, and accordingly are also allowable for this reason alone.

IX. CONCLUSION

Appellants respectfully submit that all of the appealed claims in this application (claims 1-12) are patentable for at least the reasons stated above and request that the Board of Patent Appeals and Interferences overrule the Examiner and direct allowance of the rejected claims. Only one novel and non-obvious element is required for patentability. The rejection of Appellants' claims was not proper because the Examiner failed to: (i) disclose all of the claim elements in prior art; and (ii) provide evidence supporting the assertion that a suggestion or motivation existed in the art to combine the references as asserted by the Examiner.

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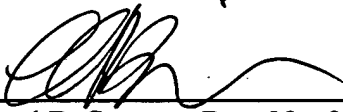
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APPENDIX OF CLAIMS ON APPEAL – CLAIMS 1-12

1. An electronically controlled vehicle drivetrain, comprising:
an electronically controlled engine including an electronic engine controller;
an electronically controlled automated mechanical transmission including an electronic transmission controller;
a pre-assembled data link assembly for providing electronic communication between said engine controller and said transmission controller, said pre-assembled data link assembly comprising a trunk portion having first and second ends, an engine shunt portion spliced into said trunk portion, a transmission shunt portion spliced into said trunk portion, a first termination resistor located at said first end of said trunk portion, and a second termination resistor located at said second end of said trunk portion.
2. The vehicle drivetrain according to Claim 1, wherein said trunk portion comprises a multiplex cable.
3. The vehicle drivetrain according to Claim 1, wherein said first and second termination resistors are housed in a barrel mold.
4. The vehicle drivetrain according to Claim 1, further comprising a double wall shrink tube for covering said engine shunt portion and said transmission shunt portion.
5. The vehicle drivetrain according to Claim 4, wherein one side of said double wall shrink tube includes an adhesive material.
6. The vehicle drivetrain according to Claim 1, further comprising an anti-lock brake system shunt portion spliced into said trunk portion.

7. A pre-assembled data link assembly for providing electronic communication between one of an engine controller and a transmission controller, comprising:

- a trunk portion having a first end and a second end;
- an engine shunt portion spliced into said trunk portion;
- a transmission shunt portion spliced into said trunk portion;
- a first termination resistor located at the first end of said trunk portion; and
- a second termination resistor located at the second end of said trunk portion.

8. The data link assembly according to Claim 7, wherein said trunk portion comprises a multiplex cable.

9. The data link assembly according to Claim 7, wherein said first and second termination resistors are housed in a barrel mold.

10. The data link assembly according to Claim 7, further comprising a double wall shrink tube for covering said engine shunt portion and said transmission shunt portion.

11. The data link assembly according to Claim 10, wherein one side of said double wall shrink tube includes an adhesive material.

12. The data link assembly according to Claim 7, further comprising an anti-lock brake system shunt portion spliced into said trunk portion.